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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,177	06/19/2002	Philippe Raffy	NM-96	1131

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EXAMINER	
JELINEK, BRIAN J	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,177	RAFFY ET AL.	
	Examiner	Art Unit	
	Brian Jelinek	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13-20* is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/19/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is a first office action in response to application no. 10/064,177 filed on 6/19/2002 in which claims 1-20 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya (U.S. Pat. No. 6,356,276).

In reference to Fig. 4 of Acharya, the Examiner will consider the top-left, top-right, bottom-left, bottom-right-top, and bottom-right-bottom images as image A, B, C, D and E, respectively. Furthermore, please note that the pixel values in Fig. 4B are determined according to Fig. 3 and Formulas 1-6 (col. 8, lines 15-39) for Cases 1-4 (col. 8, lines 15-39).

Regarding claim 1, Acharya discloses a direct converter (Abstract) comprising: an input buffer (Fig. 5, element 610) coupled to receive a stream of pixels in a Bayer pattern (Fig. 4A) wherein each pixel location has no more than one of a red (R) pixel, a blue (B) pixel, and a green (G) pixel (Fig. 4); a luminance calculator (Fig. 3, Formulas 1-4), coupled to receive an input block (e.g., Fig. 4A, pixels G42, R43, G44, B52, G53,

B54, G62, R63, and G64) of the pixels from the input buffer, the input block including a plurality of green pixels and at least one blue pixel and at least one red pixel in the Bayer pattern, the luminance calculator generating from the green, red, and blue pixels in the input block a luminance pixel for a pixel location within the input block (e.g., Fig. 4B, pixel Y53, Formula 4) because the pixel location corresponds to a location within the input block; a luminance buffer (Fig. 5, element 627) for storing a plurality of luminance pixels generated by the luminance calculator including a luminance block (Fig. 4C) of luminance pixels that has at least some pixel locations that correspond to pixel locations within the input block (e.g., the luminance pixels Y42, Y43, Y52, and Y53 in Fig. 4B correspond to Bayer pattern pixels G42, R43, G44, B52, G53, B54, G62, R63, and G64 in Fig. 4A); and a chrominance calculator (Fig. 3, Formulas 5 and 6), coupled to both the input buffer and to the luminance buffer, receiving red pixels and blue pixels within the input block, and receiving the luminance block of luminance pixels from the luminance buffer, the chrominance calculator calculating a first chrominance value (Fig. 3, Formula 6) from the blue pixels and from the luminance block of luminance pixels and a second chrominance value (Fig. 3, Formula 5) from the red pixels and from the luminance block of luminance pixels, whereby luminance and chrominance values are calculated directly from the red, green, and blue pixels in the Bayer pattern.

Regarding claim 2, Acharya discloses wherein missing R, G, B color components in the Bayer pattern are not generated by interpolation but luminance and chrominance values are directly generated from the Bayer pattern without interpolation of R, G, B pixels to generate missing R, G, B pixels (col. 9, lines 28-33).

Regarding claim 3, Acharya discloses wherein the chrominance calculator further comprises: a luminance averager, receiving the luminance block of luminance pixels, for generating an average luminance of the luminance block (Fig. 3, Formulas 5-6, median(G) because a median is an average); a chrominance generator that receives the average luminance from the luminance averager and receives blue pixels from the input buffer, the chrominance generator combining the average luminance and the blue pixels to generate the first chrominance value (Fig. 3, Formula 6) , the chrominance generator receiving the average luminance and the red pixels from the input buffer and combining the average luminance and the red pixels to generate the second chrominance value (Fig. 3, Formula 5), whereby the average luminance is generated and used as an intermediate when generating the first and second chrominance values.

Regarding claim 4, Acharya discloses green pixels do not contribute to the first chrominance value or to the second chrominance value except for contributing to the average luminance, whereby the chrominance generator does not include contributions from green pixels in the input block but only from red or blue pixels from the input block (Fig. 3, Formulas 5-6).

Regarding claim 5, Acharya discloses the first chrominance value is a U pixel and the second chrominance value is a V pixel and the luminance pixel is a Y pixel in a YUV format (Fig. 3, Formulas 1-6 for calculating Y, Cr, and Cb) because YCrCb is a YUV format.

Regarding claim 6, Acharya discloses the input block is at least a 3x3 block of at least three rows and three columns of pixels in the Bayer pattern (Fig. 4, Formula 4;

e.g., calculating luminance pixel Y53 in Fig. 4B uses the Bayer pattern input pixels G42, R43, G44, B52, B54, G62, R63, and G64 in Fig. 4A), wherein the luminance pixel generated by the luminance calculator at a central pixel location (e.g., Fig. 4B, pixel Y53) surrounded by other luminance pixels in the luminance block (Fig. 4C, pixels Y42, Y43, Y44, Y52, Y54, Y62, Y63, and Y64).

Regarding claim 7, Acharya discloses the luminance block is a same size as the input block (Figs. 4A and 4C).

Regarding claim 8, Acharya discloses the luminance block corresponds to same pixel locations as the input block (Figs. 4A and 4C).

Regarding claim 9, Acharya discloses the chrominance calculator is activated for fewer pixel locations than the luminance calculator, wherein more luminance pixels (Fig. 4B, pixels Y42, Y43, Y52, and Y53) are generated than first chrominance values (Fig. 4B, pixel Cb53) and more luminance pixels are generated than second chrominance values (Fig. 4B, pixel Cr53).

Regarding claim 10, Acharya discloses the chrominance calculator is activated only when a central pixel location within the input block has a green pixel and not a red pixel and not a blue pixel (Fig. 4, Case 4, Formulas 5-6).

Regarding claim 11, Acharya discloses the luminance calculator multiplies each pixel in the input block by a corresponding coefficient in a coefficient block to produce intermediate products, wherein the luminance calculator sums the intermediate products to generate the luminance pixel (Fig. 4B, Formulas 1-4, sum-of-products).

Regarding claim 12, Acharya discloses the coefficient block is selected from a plurality of four coefficient blocks based on a pattern of the R, G, and B pixels in the input block (Fig. 4B, Cases 1-4, Formulas 1-4).

Allowable Subject Matter

Claims 13-20 are allowed.

Regarding claim 13, the reason for allowance is as follows: the prior art does not disclose or fairly suggest a method for directly generating YUV pixels from red (R), green (G), blue (B) pixels in an un-interpolated pattern comprising: generating a U component from the at least two B pixels and from the average Y value while ignoring R and G pixels from the input block, reading at least two R pixels from the input block; and generating a V component from the at least two R pixels and from the average Y value while ignoring B and G pixels from the input block, in combination with all other limitations in the claim.

Regarding claim 17, the reason for allowance is as follows: the prior art does not disclose or fairly suggest a color-space converter comprising: receiving luminance components from the luminance calculator means, generating a U chrominance component for the center pixel location within the input block by averaging the at least two B pixels and averaging at least 9 luminance components from the luminance storage means for pixel locations within the input block, and for generating a V chrominance component for the center pixel location within the input block by averaging the at least two R pixels and averaging at least 9 luminance components from the

luminance storage means for pixel locations within the input block, in combination with all other limitations in the claim.

Regarding claim 14-16, and 18-20, the reason for allowance is as follows: the claims depend from allowable base claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Jelinek whose telephone number is (571) 272-7366 thereafter. The examiner can normally be reached on M-F 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached at (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Jelinek
3/10/2005

TUAN HO
PRIMARY EXAMINER